

AUGMENTED DIAGNOSTICS APPROACH

From Test Results To Actionable Insights



Your Trusted Partner in Augmented Diagnostics

PIONEERING DIAGNOSTICS

THE FOOD INDUSTRY IS AT A TURNING POINT

Whilst adapting to consumers' new food experiences, the food industry is also undergoing major changes challenging the way food and beverage processors need to approach food safety and quality.

GROWING FOOD SAFETY & QUALITY CHALLENGES

- Increasing non-quality costs
- Recent unprecedented recalls
- Stringent food safety regulations
- Food industry digitalization



AN UNPRECEDENTED MACRO-ECONOMIC CONTEXT

- Supply chain disruption
- Inflation & cost pressure
- Geo-political uncertainties



NEW CONSUMER DEMANDS & TRENDS

- Novel ingredients, including plant-based alternatives
- Health, well-being and aging well
- Clean labels for transparency



TODAY'S & TOMORROW'S SUSTAINABILITY CHALLENGES

- CO₂ footprint reduction
- Water resources responsible management



It is time to challenge the status quo and help food manufacturers with new, innovative approaches to Food Safety and Quality in order to:



Better anticipate emerging risks



Improve all manufacturing KPIs, including productivity, time to supply, food waste, and carbon footprint



Leverage new innovations in technologies and data science

AUGMENTED DIAGNOSTICS, A RECOGNIZED DISRUPTIVE APPROACH

Always alongside our customers, we collaborated with global food and beverage companies around the world to create the bioMérieux Augmented Diagnostics approach. This approach helps our customers increase the precision and actionability of their safety and quality control programs along their entire production value-chain.

CASE STUDY #1

LEADING RAW MEAT PRODUCER — ROOT CAUSE ANALYSIS OF *LISTERIA MONOCYTOGENES*

CHALLENGE

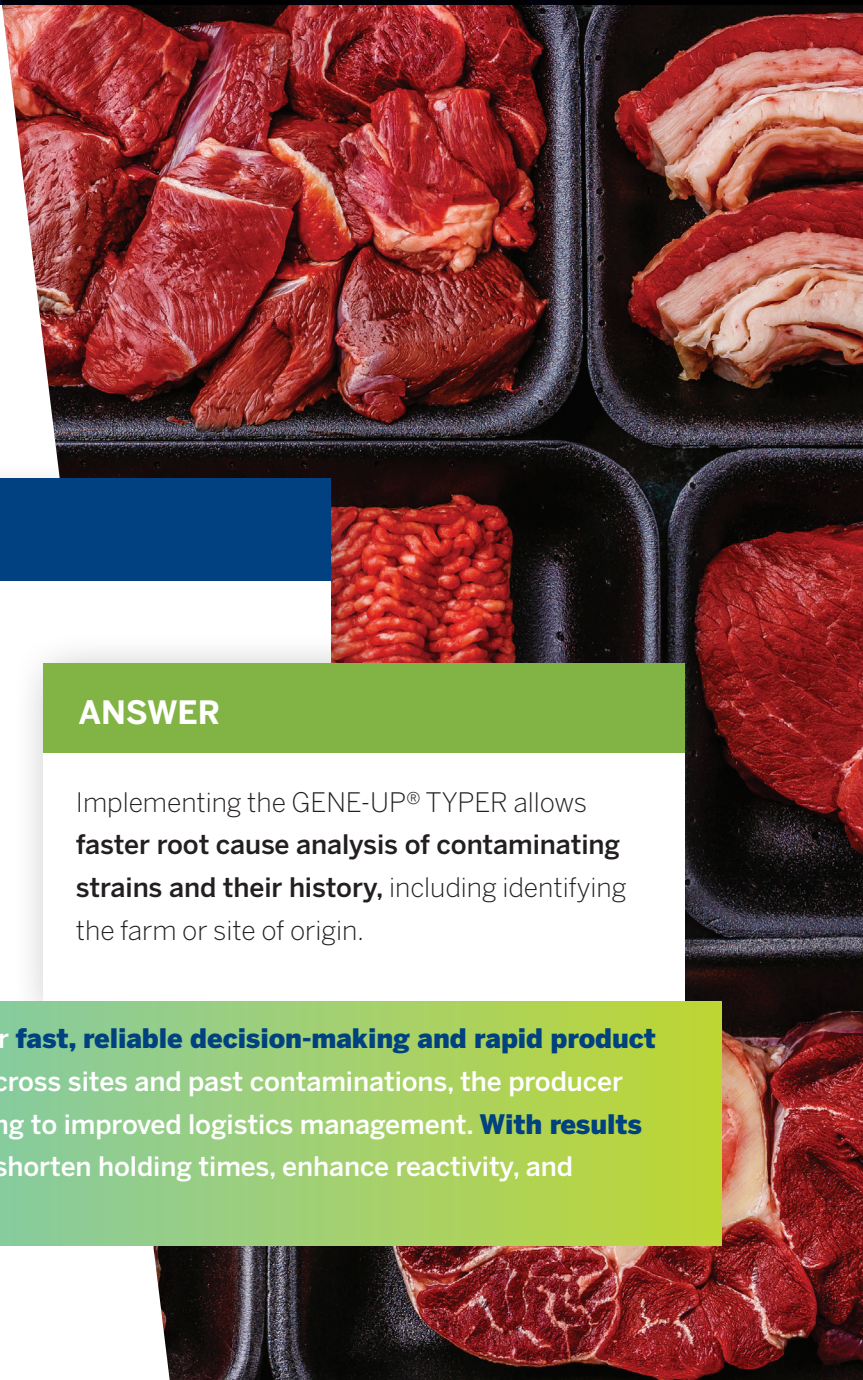
A raw meat producer faced **contamination issues and sought to enhance their quality control**. They needed a faster, more reliable method to type strains and track contaminations from livestock to production for improved traceability.

ANSWER

Implementing the GENE-UP® TYPYR allows **faster root cause analysis of contaminating strains and their history**, including identifying the farm or site of origin.



GENE-UP® TYPYR is a powerful tool for **fast, reliable decision-making and rapid product release**. By correlating strain typing across sites and past contaminations, the producer can trace contamination origins, leading to improved logistics management. **With results in just one hour (from colony)**, they shorten holding times, enhance reactivity, and expedite delivery to clients.





CASE STUDY #2

WORLDWIDE INFANT FORMULA MANUFACTURER — CRONOBACTER INVESTIGATION & MANAGEMENT

CHALLENGE

An infant formula manufacturer confirmed the presence of *C. sakazakii* in the environment, raw materials, in-process and finished products. They needed to **understand the origin and the reasons of the persistence** despite active cleaning procedures.

ANSWER

Implementing the Augmented Diagnostics approach using Pathogen Mapping, a combination of **Whole Genome Sequencing, data science, and experts** to get new insights on the contamination.



Faster understanding of the root cause of the persistent contamination enabled data-driven decisions to be made to resolve the *C. sakazakii* problem. These interventions not only **saved the company significant non-quality costs** in terms of production time, but also ensured the **delivery of a safer product**.

CASE STUDY #3 EUROPEAN LEADING FRUIT JUICE PRODUCER — OPTIMIZE JUICE PRODUCTION PROCESS & QUALITY



CHALLENGE

One of the seven production sites at Europe's leading fruit juice supplier had to meet the quality challenge of **releasing their product in a short span of time in order to limit storage costs while guaranteeing optimum product quality, including sensory properties**.

ANSWER

Site implements **D-COUNT® solution at different critical steps of the production process** to sort raw material and mix tank, for **early warning on process failure** directly after filling and release of finished products in 48 hours.



Shifting the focus from reaction to prevention empowered teams with actionable insights that enhance the value of testing protocols. A tangible impact: **significant reduction in inventory**, exemplified by 3000 fewer pallets, and a marked **improvement in product quality**. The early warning system is pivotal in mitigating the risk of microbiological contamination, potentially saving up to 800 pallets from being scrapped due to process failures.

EXPERTISE AND CUTTING-EDGE SOLUTIONS

bioMérieux's Augmented Diagnostics is an innovative new approach to food safety & quality. This approach combines cutting-edge microbial testing technologies (including **Microbiology** and **Molecular Biology**) with the latest **Genomics** and **Data Science** methodologies, as well as an innovative spirit and **industry experts**.

ADVANCED
MICROBIOLOGY

MOLECULAR

GENOMICS

DATA SCIENCE
& EXPERTISE

AUGMENTED DIAGNOSTICS

SMART & DYNAMIC RISK ASSESSMENT

SEGMENTS WE SERVE



Animal Proteins
Meat, Poultry, & Alternatives



Beverages



Chocolate &
Confectionery



Dairy &
Plant Based



Dietary
Supplements



Pet Food



Produce



Ready to
Eat Food

WHERE WE HELP YOU TO ACT



PRODUCTIVITY AND EFFICIENCY

Faster product
release

Scrap saving

Lab efficiency and
automation

Digitalization and
connectivity



ENVIRONMENTAL MONITORING PLAN

EMP Design

Automated
scheduling,
monitoring &
mitigation plan

Continuous
improvements
analysis



ROOT CAUSE ANALYSIS

Whole Genome
sequencing & typing

Expert analysis
of genomics &
microbiology for
root cause analysis



FOOD SAFETY & QUALITY ASSURANCE

Investigation with
metagenomics
analysis

Process
optimization &
people upskilling

THE AUGMENTED DIAGNOSTICS APPROACH: FROM TEST RESULTS TO ACTIONABLE INSIGHTS

MICROBIOLOGY & MOLECULAR



SAMPLE & MEDIA PREPARATION

- BIOBALL®
- BLUE LINE™
- Culture Media



SPOILERS & QUALITY INDICATORS

- TEMPO®
- D-COUNT®
- BACT/ALERT®
- GENE-UP®
- VERIFLOW™



PATHOGEN DETECTION

- VIDAS® KUBE™
- Chromogenic Plates
- GENE-UP®



MICROBIAL IDENTIFICATION

- VITEK® MS PRIME
- VITEK® 2 COMPACT
- API®



CUSTOM MOLECULAR BIOLOGY

- The xPRO™ Program

AUGMENTED-DX PORTAL Data Insights, Investigations, Reporting



INVESTIGATION & ROOT CAUSE ANALYSIS

- Pathogens & Spoilers Mapping (*whole genome sequencing*)
- Microbiome Discovery (*metagenomics*)
- GENE-UP® TYPER



DIGITALIZATION

- ENVIROMAP®
- VILINK®



PEOPLE & PROCESS UPSKILLING

- EM E-Learning
- Process Optimization
- EM Consulting Services

GENOMICS & ENVIRONMENTAL MONITORING EXPERTISE



LEARN MORE ABOUT THE AUGMENTED
DIAGNOSTICS APPROACH ON OUR WEBSITE.